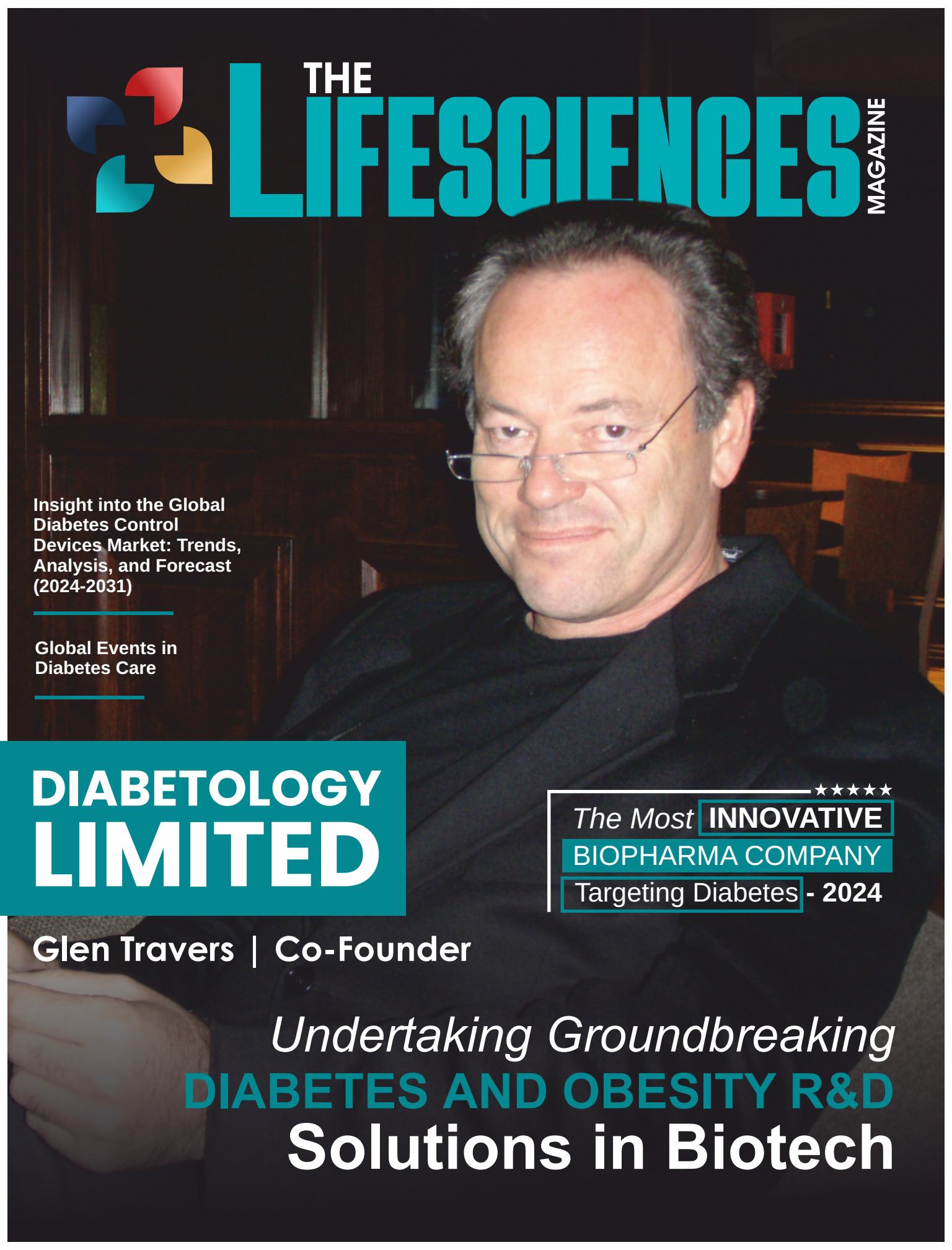
THE LIFESCIENCES MAGAZINE



Insight into the Global Diabetes Control Devices Market: Trends, Analysis, and Forecast (2024-2031)

Global Events in Diabetes Care

DIABETOLOGY LIMITED

★★★★★

The Most **INNOVATIVE** BIOPHARMA COMPANY Targeting Diabetes **- 2024**

Glen Travers | Co-Founder

Undertaking Groundbreaking

DIABETES AND OBESITY R&D Solutions in Biotech

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FROM EDITOR'S DESK

In this month's edition, we are thrilled to shine a spotlight on innovation in the biopharma industry, particularly in the realm of diabetes management. Our cover story features the most innovative biopharma company targeting diabetes in 2024, showcasing their groundbreaking research, cutting-edge treatments, and commitment to improving the lives of millions affected by this chronic condition.

As the prevalence of diabetes continues to rise globally, the need for innovative solutions has never been greater. This issue delves into the latest advancements in diabetes therapeutics, exploring novel drug delivery systems, precision medicine approaches, and promising pipeline developments that offer hope for better outcomes and quality of life for patients.

We also highlight the visionary leaders driving progress in the biopharma sector, sharing their insights, strategies, and perspectives on the future of diabetes care. From pioneering scientists to dedicated healthcare professionals, these individuals are at the forefront of revolutionizing treatment paradigms and shaping the future of healthcare.

As the lifesciences industry continues to evolve and innovate, Lifesciences Magazine remains committed to providing timely and insightful coverage of the companies, leaders, and advancements driving progress in healthcare. We invite you to explore this month's issue.

Diabetology Limited is an award-winning clinical-stage biopharmaceutical company. It employs a proprietary targeting oral delivery system to administer known macromolecule drugs as well as novel combinations to transform the treatment outcomes for patients with diabetes and/or obesity. The Lifesciences Magazine is proud to feature Diabetology under the issue **'The Most Innovative Biopharma Company Targeting Diabetes - 2024'**

Dr. Roger New, Co-Founder of Diabetology has successfully developed a powerful capsule formulation that overcomes stomach acidity and protease attacks in the upper intestine. The capsule ultimately enhances its availability to the body by being absorbed transcellularly, and specifically to the liver where insulin exerts its primary activities.

Alongside **Dr. New, Glen Travers** (Co-founder of Diabetology) is spearheading the growth of Diabetology. Skilled in Medical Devices, Oral Vaccines, and Biotechnology company development, Glen has a bright history of working in the biotechnology industry.

Shalmali

Shalmali W.

REDEFINING THE SCIENCE OF LIFE

The Lifesciences Magazine is global healthcare solutions platform that paves the way for various healthcare innovations, advices of professionals.

THE LIFESCIENCES MAGAZINE

LEADERS IN SPOTLIGHT

Diabetes which is currently on the rise, is of major concern as it is also a major cause of blindness, kidney failure, heart attacks, stroke, and lower limb amputation.

The second area of concern is obesity which is a global escalating source of type 2 diabetes leading to the previously mentioned morbidities and straining our health systems.

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Diabetology specializes in targeted oral drug delivery in metabolic diseases such as diabetes and obesity. The company is committed to improving the quality of life for patients with diabetes. The disease now affects up to 10% of populations in many different ways, and its proprietary technologies, enabling ingestion of insulin and other protein drugs like GLP1 RA via the oral route, could bring back normality to the lives of diabetes sufferers. Oral insulin is not only more convenient for the patient but avoids certain complications of the disease without introducing new side effects, improving the patient's general health and well-being.

10. COVERSTORY

Diabetology Ltd

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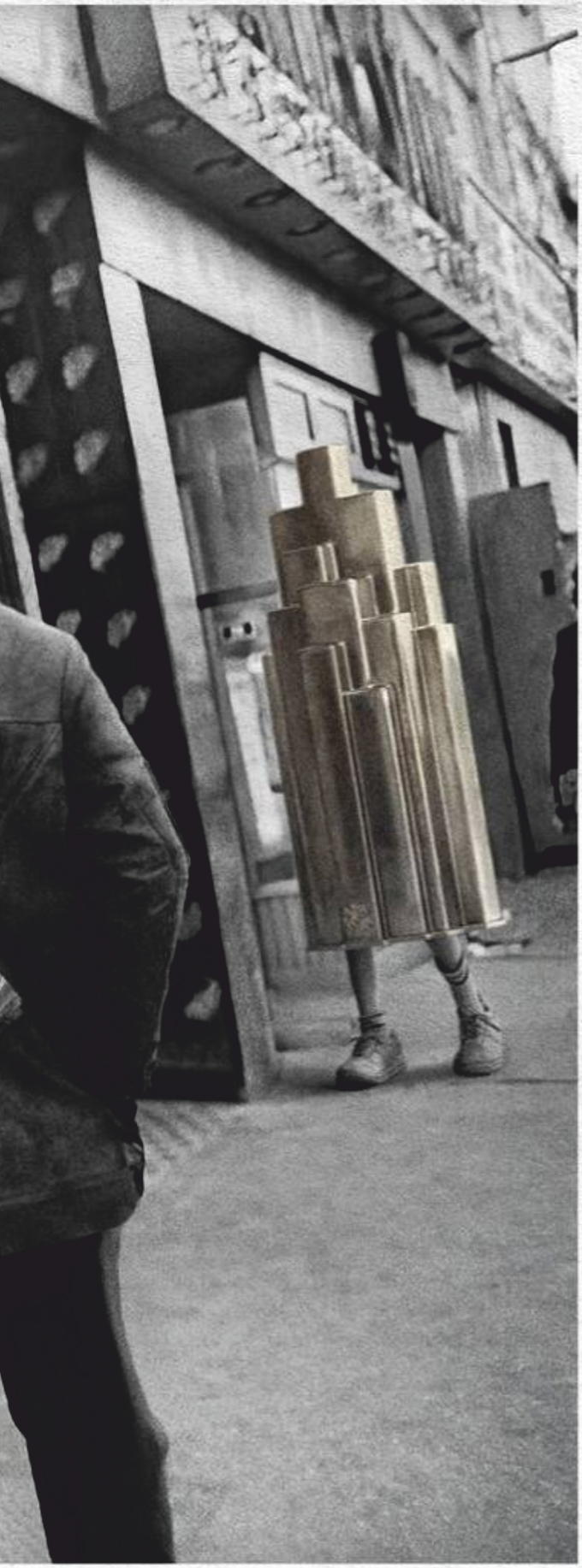

We were into health when New York wasn't.

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DIABETOLOGY LIMITED

Undertaking Groundbreaking Diabetes and Obesity R&D Solutions in Biotech

Glen Travers | Co-Founder
Diabetology Ltd

Cover **Story**

As 2024 unfolds, the biotechnology industry is brimming with potential, spearheading scientific innovation. This year is particularly exciting as a diverse range of biotech companies are poised to break new ground to tackle global challenges. Two areas of growing concern are:

Diabetes which is currently on the rise, is of major concern as it is also a major cause of blindness, kidney failure, heart attacks, stroke, and lower limb amputation.

The second area of concern is obesity which is a global escalating source of type 2 diabetes leading to the previously mentioned morbidities and straining our health systems.

Diabetology Limited is an award-winning clinical-stage biopharmaceutical company. It employs a proprietary targeting oral delivery system to administer known macromolecule drugs as well as novel combinations to transform the treatment outcomes for patients with diabetes and/or obesity. ***The Lifesciences Magazine*** is proud to feature Diabetology under the issue *'The Most Innovative Biopharma Company Targeting Diabetes - 2024'*.

Improving Quality of Life

Diabetology specializes in targeted oral drug delivery in metabolic diseases such as diabetes and obesity. The company is committed to improving the quality of life for patients with diabetes. The disease now affects up to 10% of populations in many different ways, and its proprietary technologies, enabling ingestion of insulin and other protein drugs like GLP1 RA via the oral route, could bring back normality to the lives of diabetes sufferers. Oral insulin is not only more convenient for the patient but avoids certain complications of the disease without introducing new side effects, improving the patient's general health and well-being.

Diabetology helps diabetic patients by shaping their future for a better tomorrow. One of the biggest burdens to society is the reaction some people have to certain foods and beverages that leads to inflammatory conditions that can result in insulin resistance, diabetes, obesity, cardiovascular disease , blindness, neuropathies, renal dysfunction, and dementia. 42% of US adults are now obese. The cost of related health issues is a drain on the healthcare provision of most nations. However, diabetes and obesity are not just a western problem, it is a universal one. Targeted formulation technology can make the process of development of solutions safer, more effective and efficient. Formulation algorithms have been used to identify non-NCE excipients that can safely enhance the function of proteins and peptides delivered directly to key sights of action to impact disease.

Capsulin Oral Anti-Diabetic (OAD) Initially for Type 2 Diabetes

Diabetology solves a physician's dilemma of improving insulin effectiveness without side effects. The company discovered the possibility of delivering insulin in the form of Capsulin Oral Anti-Diabetic (OAD), an easy-to-swallow capsule to be consumed twice daily for type 2 diabetes. The proprietary, targeted delivery system allows insulin and other proteins such as GLP-1 RAs to be ingested orally, bringing more normalcy to the lives of diabetes patients. "Our novel oral delivery system is physiologically consistent with how the pancreas and the liver naturally control the glucose levels in our bodies," says Dr. Roger New, Co-Founder of Diabetology.

After extensive research, Dr. New has successfully developed a powerful capsule formulation that overcomes stomach acidity and protease attacks in the upper intestine. The capsule ultimately enhances its availability to the body by being absorbed transcellularly, and specifically to the liver where insulin exerts its primary activities. Capsulin OAD contains pharmacopeia-safe special excipients that activate gut cells, helping insulin to pass through the epithelium and enter the liver's portal vein. This innovative approach significantly improves insulin delivery in a reproducible manner without the need for titration, lowering the risk of hypoglycemia as compared to methods like sublingual tablets, pumps, EpiPens, and subcutaneous injections that deliver high insulin levels directly to the outer circulation.

Dynamic Professional Experience

Alongside Dr. New, Glen Travers (Co-founder of Diabetology) is spearheading the growth of Diabetology. Skilled in Medical Devices, Oral Vaccines, and Biotechnology company development, Glen has a bright history of working in the biotechnology industry. He is a strong entrepreneurship professional focused on bringing important products to market as well as having a background in corporate finance. He has been on the international board representing 1000 European CEO's as a member of US headquartered Young Presidents Organisation which is a global gathering of CEO Peers. YPO runs many courses and activities from leadership, management, health technology, AI to self-learning and holistic wellbeing.

Cover **Story**

Dr. Roger New

Co-Founder of Diabetology.

Glen started his professional journey with the Development Capital company in Western Australia and listed it creating a $700m market capitalisation . The company started investing in a range of industries including Engineering, Fashion Retail, Leverage Buyouts ($1bn Beatrice international Group buyout), Pharmaceuticals, Lifescience R&D (co-royalty holders with Nobel Laureates for a breakthrough in helicobacter and developed the first oral COPD vaccine called Broncostat sold to large pharma). Thereafter, it was converted to pure biotech play with oral drug delivery platforms, POC diagnostics, and Branded Pharmaceuticals in the UK.

A Purpose beyond Financial Gain

Following his earlier successes, Glen established the Travers Family Office to pursue their metabolic ambitions. This task has been led with his Diabetology co-founder Dr Roger New and ably supported by his family consisting of two medical doctors, one Dr of Clinical Psychology specialising in eating disorders ,and, one Cambridge University graduate majoring in natural sciences all of whom have been incredibly supportive.

For his astute leadership skills, Glen has been bestowed with numerous awards and accolades throughout his journey. He was awarded E&Y Healthcare Entrepreneur in the EU, and his company was awarded as the best-performing company listed on ASX over 3 years (peak mkt cap >$1bn). The company launched products for blood pressure, gallstones, an oral vaccine for COPD (and sold to Rhone Poulenc Rorer), launched the first POC diagnostic for bacterial infection (Helisal – licensed to Boehringer Mannheim, Astra, Becton Dickinson amongst others), the first evidence of oral insulin at Oxford Radcliffe hospital in type 1 diabetics and other projects.

Glen's family office aimed to impact the biotech industry with the need to do more than earn money. His best friend's father had a type 1 diabetes journey of deafness, amputations and he recognised the potential burden to society of metabolic diseases. The incident inspired him to make efforts and bring innovation to the industry. Finding financial support for an expensive industry and support for breakthrough thoughts and projects were the biggest challenges in terms of initially rising through the ranks.

Collaborative, Open Geographically Agnostic Approach towards Leading

By minimising the administrative costs through virtual meetings, being agnostic to geography and maximizing the knowledge opportunities, Glen makes sure that his leadership philosophy is reflected through his team. Whenever possible, he outsources to leaders in their fields and relies on their own inspiration and desire to achieve meaningful goals in life. He suggests upcoming leaders be well educated in their relevant activity, consider undertaking Master's in Biotech courses to pursue lifescience startups, and work with innovators to make a difference to patients. Allowing 2-sided thinking is very helpful to avoid missing important ideas and this helps to be flexible in discussions and work relationships.

Glen's Leadership Philosophy includes:

- Short Interventions
- Staying Focused
- Reporting by Exception
- Virtual Video Meetings, Geographically Neutral
- Outsourcing to Experts
- Utilise AI as PA assistant
- Collaborative
- Open
- Two- Sided Respect for People and Ideas

Mitigating the Risk of Side Effects and Hypoglycemia - using Natural Pathways

Recent research led by Diabetology has made significant discoveries about Capsulin OAD's ability to solve two predominant industry challenges—cost-effectiveness and reduction of side effects . Given the cost of recombinant human insulin per dosage, Capsulin oral insulin, transported via the gut into the portal vein direct to the liver cells, reduces the cost of the required medication, making it commercially viable, and eliminates the possibility of hypoglycemia, which can accidentally occur while injecting non physiological levels of insulin into the outer circulation.

"A recent phase 2b study has demonstrated that our Capsulin product delivery is safe with no hypoglycemia or insulinemia. As a result, there is a positive impact on fasting plasma glucose, systolic blood pressure, triglycerides, and lipid levels with no weight gain that also play a role in the body's cardiovascular health," adds Glen.

The biopharmaceutical industry has vast scope to grow and one way to view this is to look at what proportion of a nation's GDP is consumed by the issues around healthcare which is now rising to 20% in the US. Following the COVID crisis, health institutions are becoming stronger despite some of them, including academic research organisations, facing national funding issues that need to be addressed. The most predominant issues include independently evaluating and supporting R&D in life science, to streamline the development costs and improve effectiveness of treatments for the ageing demographics in key economies, and, for some rapidly growing resource constrained populations. Food companies need to be included in these considerations. It is important for us to stay alert and be prepared for any next health crisis. Information is available which can provide advance warnings of potential health crises ahead including e.g. antibiotic resistance and further outbreaks of pandemic disease. A current crisis though in ever heavier debt laden economies, is the need to provide support for the many research opportunities that are not funded or must wait for a crisis to emerge before there is rushed investment and support. This can result in less effective human health responses to predictable issues

An Era ahead of AI combined with Supercomputing: Allowing Faster, Lower Cost Advancement for Disease Solutions

AI and supercomputing usage assists many areas of disease understanding, diagnosis and drug development. This creates efficiencies to advance the latest technologies in the industry promising exponential opportunity for improvement in human health. According to Glen, the resultant cell function, genetic, DNA, RNA, epigenetics, microbiome and neuroceuticals treatment, diagnostic and preventive developments evolving from research universities and the biopharma industry will lead to better health outcomes. These efficiencies could even assist the challenge of reaching those who cannot afford them. It is important to share in the benefits of great innovations beyond the country of origin. The healthcare industry is making promising advances with these new technologies from which hopefully all can benefit..

In Diabetology, their technological advancement allows direct passage of Capsulin via the gut to the portal vein, and then to the liver, which returns glucose control to the liver. This has the potential to decrease insulin resistance while improving its effectiveness of glucose control. This ability could enable healthcare professionals to administer Capsulin OAD in the early stages of diabetes, owing to its range of positive effects, including the potential to preserve Beta cell function potentially restoring exhausted islet cell insulin production. The co-founders currently look forward to witnessing favorable outcomes from a phase 3 study of Capsulin OAD in coming clinical trials with Type 2 diabetes patients.

Patients who took part in a phase 2a study demonstrated the body's response to glucose disposal in a glucose clamp study, with the liver receptors quickly attaching to the hormone and allowing the liver to regulate glucose levels in spite of the patient's insulin resistance. The capsule minimizes the possibility of hyperinsulinemia since the required biological effects are achieved without needing high levels of insulin in the bloodstream.

Capsulin oral insulin Peer Reviewed Publication of phase 2b clinical study safe and effective; Preparing for FDA Phase 3

Much earlier animal trials have also confirmed the optimal quantity of protein that can be delivered to the liver via the oral capsule. Besides demonstrating its effectiveness, the tests proved Capsulin OAD's capacity to avert potential unwanted effects that may arise if the hormone is injected into the outer circulation. Diabetology's phase 2b study consisted of 100 patients who were administered two doses per day. After 12 weeks, the company attained key parameters that confirmed the product's efficacy—falling HbA1c, fasting plasma glucose, systolic blood pressure, and triglycerides. This peer reviewed and published trial also reported no cases of hypoglycemia even when the dose of insulin used was doubled confirming the benefit of the targeted pathway showing liver glucose control from twice daily fixed dosing without the need for titration of insulin levels.

An Oral Once Daily or Weekly Neuroceutical to stimulate the Vagus Nerve Satiety Response to Treat Obesity?

Numerous other studies have unearthed Diabetology's oral delivery system's immense potential and ability to efficiently deliver other APIs such as Glucagon-like Peptide 1 (GLP 1) receptor agonists. This has led to the company developing a single daily dose capsule of a GLP1 RA as well as a GLP-1/insulin combination that has successfully been tested in animals for oral absorption. This pioneering result for diabetes was recently presented at the American Diabetes Association. The company is also utilising its targeting formulation oral capsule delivery system to direct GLP1 RA's to the gut where the L cells produce natural GLP1. This is where the omnipotent Vagus Nerve has GLP1 receptors to signal directly the satiety centres of the brain which inturn signals organs such as the pancreas, stomach and liver to increase insulin release, improve glucose balance and trigger food satiety responses in the brain and stomach. This unique neuroceutical benefit seen in small and large animal tests is demonstrating that a once daily and potentially once weekly oral dosing of certain GLP1RA's is probable. These predictive studies have shown comparatively very high oral biopotency with very low blood levels opening up potential for reduced side effects such as nausea and vomiting due to reduced drug load in the outer circulation and is entering the clinic shortly with potential for treating obesity.

Fuelled by its breakthrough achievements from its Travers Family Office beginnings, Diabetology plans to enter into strategic relationships to develop new life-changing medications. This strategy aligns with the company's aspiration to extend beyond commercial interests and positively impact disadvantaged individuals and even countries who do not have access to life changing treatments.

“

Our novel receptor targeting oral delivery system is physiologically consistent with how the pancreas and liver naturally control glucose disposal in our bodies.”

Professional Bio :

Company Name	Diabetology Limited
About	It is an award-winning clinical stage biopharmaceutical company.
Year of Foundation	2002
Research Centre	London, England, United Kingdom

TOOLETRIES

FOR YOUR
PRIDE AND JOY
THE VIKING
BEARD & HAIR OIL
TOOLETRIES
Sandalwood
Vitamin E
Beard &
Hair Oil
1 fl oz 30ml
THE
VIKING

RECENT TRENDS IN THERAPEUTIC APPROACHES FOR DIABETIC MANAGEMENT:

Diabetes has remained one of the most challenging health problems in the 21st century accounting for a global presence. Despite scientific breakthroughs, better healthcare facilities, and improved literacy rates, the disease continues to burden several sections, especially in middle and low-income countries. For the diabetes management of type 1 Diabetes, patients require insulin administration 3-4 times a day throughout their lives and their blood sugar level should be regularly monitored to avoid problems like **retinopathy**(disease of the retina) and risks of **cardiovascular diseases**(type of disease that affects the heart or blood vessels), for the management of type 2 diabetes, a well-monitored glycemic control is required. **Bariatric** surgery is increasingly recognized as an effective option for managing type 2 diabetes, which is highly expensive.

So, here are the multiple trends to improve the effectiveness, accessibility, and individualization of diabetes management approaches, with the ultimate goal of optimizing outcomes and enhancing qualities of life for people living with diabetes:

Stem Cell Technology: Novel Therapeutic Approach

Both type 1 and type 2 diabetes result from the β cell deficiency of the pancreatic cells, resulting in insufficient insulin secretion. This technology aims either at removing the defects in **pancreatic** β cells or enhancing the sensitivity of the body cells to the action of insulin.

Type 1 and type 2 diabetes results from irregularities in β cells function together with insulin resistance in peripheral organs. **Mesenchymal stem** cell(MSC) therapy has emerged as a promising therapy in the treatment of type 1 diabetes due to its immunosuppressive nature.

MSCs have the potential to differentiate into several mesenchymal cell lineages. The hematopoietic stem cells are the multipotent stem cells that can give rise to all the cell types in blood and also possess immunomodulatory effects. Hence, the transplantation of hematopoietic stem cells has approved to be a promising therapeutic, resulting in improvement in β cell function in newly diagnosed type 1 diabetic patients.

Hence, the application of stem cell technology holds immense prospects in the treatment of diabetes.

Gene Therapy:

The cloning and expression of insulin in the culture cells in the 1970s was a tremendous revolution in the field of medicine. The application of gene therapy in the treatment of diabetes management was suggested as a possible cure.

Gene therapy refers to the insertion of genes into cells to correct genetic abnormalities or enhance cellular function. Gene therapy utilizes viral vectors to deliver genes that boost the growth and survival of β cells or to silence genes that contribute to β cells destruction. Gene therapy involving the somatic cells of the body includes two methods of gene delivery.

The two methods are:

- **Ex-vivo Gene Therapy:** Ex-vivo therapy aims at the generation of cells that possess the properties of β cells. This therapy also generates β cells for transplantation. It involves genetically modifying cells outside the body to produce therapeutic factors and their subsequent transplantation back into patients.

- **In-vivo Gene Therapy:** In-vivo gene therapy, the vector containing the desired gene is directly inserted into the patient. The development of safe and effective vectors remains a challenging task for gene therapists. It is a strategy in which genetic material usually in the form of DNA, is applied to modify the genetic collection of target cells for therapeutic goals.

Statin-Therapy: A New Perspective

The long-term effects of diabetes include the high risk of cardiovascular diseases, statins are the main line of therapy in reducing cardiovascular risk in patients suffering from type 2 diseases. Statins are defined as inhibitors of **3-hydroxy-3 methylglutaryl** coenzyme. They work by blocking a substance that your body needs to make cholesterol.

The enzyme catalyzes the conversion of HMG-CoA to mevalonic acid(It produces terpenes and steroids), the rate of limiting step in the formation of cholesterol. These compounds are highly effective in reducing cholesterol levels as compared to dietary supplements.

Statin therapy reduces low-density protein (LDL) to a significant level thereby greatly decreasing the chances of developing coronary artery disease(It is caused by plaque buildup in the wall of the arteries that supply blood to the heart).

3 statins have a low risk of increasing blood sugar levels:

- Pravastatin
- Fluvastatin
- Pitavastatin

Medical Nutrition Therapy:

American Diabetes Association in 1994 coined the term "Medical Nutrition Therapy" constituting 2 phases, namely, adjudging the nutritional requirement of a person and treatment through counseling and nutrition therapy, respectively.

The objectives of nutritional therapy in diabetes management are to regulate the optimal level of lipids in the blood, ideal body weight, and blood glucose level in the normal range. This therapy depends on two main factors:

- Patients ' based nutritive requirements
- Food preferences

According to recent recommendations, the percentage of carbohydrate intake is based on patients' intake of protein and fat. A low carbohydrate/high protein diet is popular and may be associated with initial weight loss and improved glycemic control but is difficult to maintain for longer periods.

Protein intake is maintained at 10-20% of all calories; total fat intake should be restricted to less than 30% of total calories; high fiber diet (20-25 grams per day of soluble and insoluble fiber), sodium restriction to 2400-3000 mg/day, alcohol intake (less than 2 drinks per day in men, less than 1 drinks per day in women) and multivitamins should be taken in diet.

Nanotechnology:

The interface of nanotechnology in the treatment of diabetes has introduced novel strategies for glucose measurement and insulin delivery. Research has demonstrated the advantages of glucose sensors and closed-loop insulin delivery approaches in facilitating diabetes treatment to make it beneficial in both type 1 and type 2 diabetes.

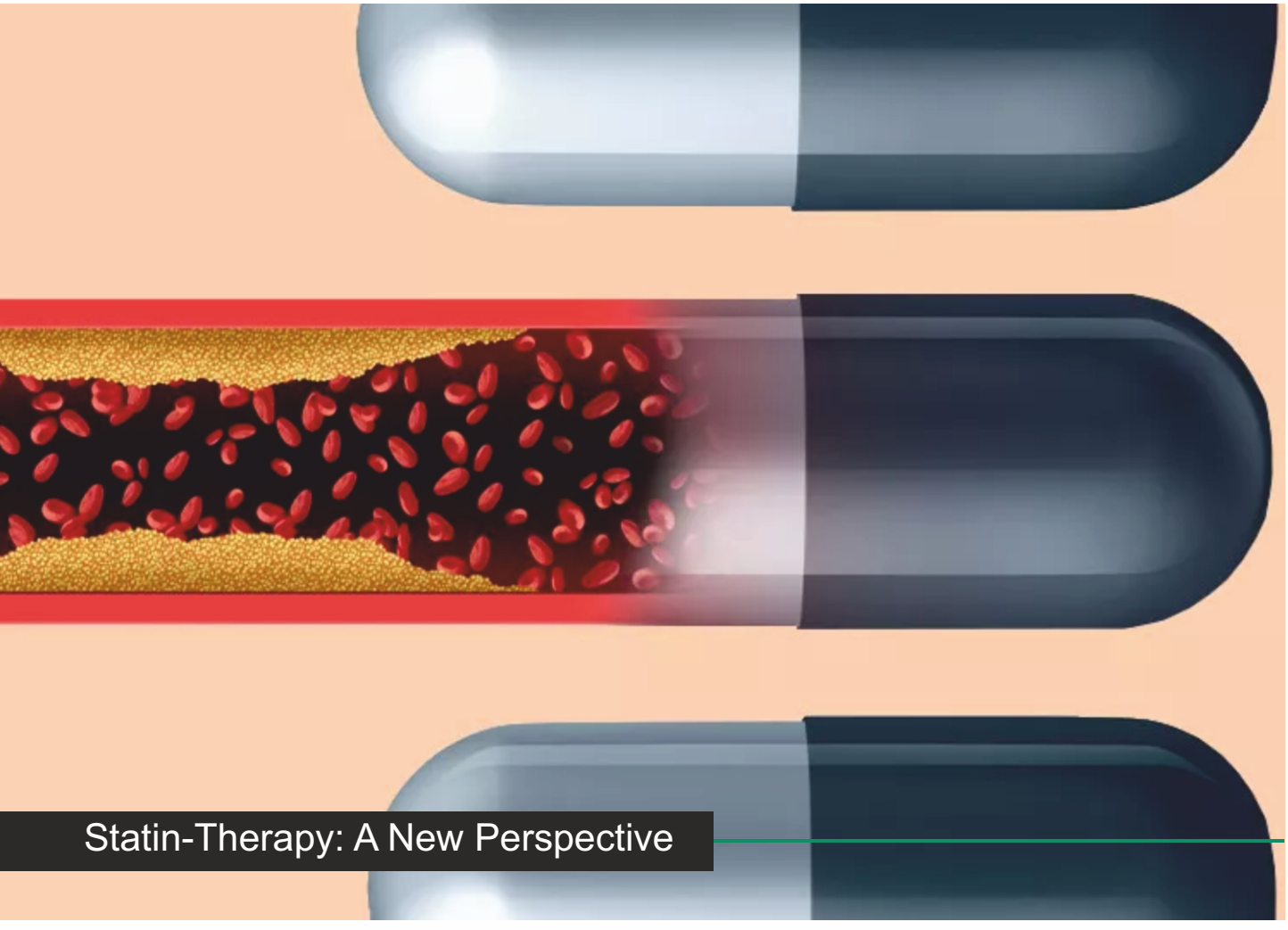
Nanotechnology is based on nanomedical devices. They are microcapsules containing pores which have been a promising tool in the drug delivery approach. These pores are considerably large to allow small molecules to pass oxygen, glucose, and insulins. They are small enough to allow the movement of large immune systems such as immunoglobins and graft-borne(Typically refers to something that is transmitted or carried through grafting, a horticulture technique where tissues from one plant are inserted into those of another so that they will unite and grow as a single plant) virus particles.

Microcapsules containing replacement islets of Langerhans cells, mostly derived from pigs, could be implanted beneath the skin of diabetes patients. This temporarily restores the body's delicate glucose control feedback loop without the need for powerful immunosuppressants that can leave the patient at serious risk of infection. One of the biggest technological challenges in nanotechnology is the scalability of nano-particles. However recent micro and nanotechnologies have facilitated the insulin administration process through the regulation of insulin delivery constituting pulmonary, nasal, transdermal, and closed-loop delivery.

Conclusion:

Recent trends in therapeutic approaches for diabetes management have underscored the importance of personalized care, targeted interventions, and holistic technologies, to effectively address the multifaceted nature of diabetes.

Furthermore, there is growing recognition of the pivotal role of lifestyle modifications, including diet, exercise, and stress management, in glycemic control and improving overall health outcomes for individuals and diabetes.



Statin-Therapy: A New Perspective

Dom, Solon High
Thursday 9:48 PM
Took out the trash.
Let's be real.
It might seem like you're missing out. In reality, only 19% of high school students in Cuyahoga County currently drink alcohol. Which means 81% don't.

Insight into the

Global Diabetes Control Devices Market: Trends, Analysis, and Forecast (2024-2031)

The diabetes control device market surpassed $32 billion in 2022 and is on track for steady growth. Though COVID-19 initially caused disruptions, it ultimately boosted demand. Heightened awareness of diabetic vulnerability to infection spurred a focus on management tools, while the rise of remote care made insulin pens and continuous glucose monitors even more valuable for at-home management. This trend, coupled with constant innovation in smart pumps and AI monitoring, and a growing global diabetic population, positions the market for a healthy 6.5% CAGR to reach $56.4 billion by 2031.

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Market Scope and Definition

The Diabetes Control Devices Market offers a variety of tools to help people manage their diabetes. This includes:

- Blood sugar monitoring devices like meters and continuous monitors.
- Insulin delivery devices like pens and pumps.

These devices are sold through various channels like pharmacies and clinics, catering to different types of diabetes (Type 1, 2, and gestational). There's even recent news about compatible continuous monitors for automated insulin delivery systems.

Regional Snapshots

The North American diabetes control device market is booming, expected to reach a CAGR (growth rate) of over 6.9% by 2031. Here's why:

Strong healthcare system:

The US, in particular, has a well-established healthcare sector that can support this market.

High diabetes rates:

A large and growing diabetic population in North America creates significant demand for these devices.

Favorable reimbursement policies:

US government programs like Medicare cover diabetes supplies, making them more affordable for patients.

Technological advancements:

The introduction of smart devices and AI-powered tools is driving market growth.

All these factors combined make North America, especially the US, the leader in the global diabetes control device market.

Key Industry Developments

- **Dexcom:** Launched the G7 CGM system, the first one approved for children in the US (October 2023).
- **Tandem Diabetes Care:** Received FDA approval for their insulin pump to work with Dexcom's CGM system (September 2021).
- **Ascensia Diabetes Care:** Partnered with SNAQ to help patients make informed meal decisions (February 2023) and with Senseonics to offer easier access to their CGM system (November 2022).

1. What was the global Diabetes Control Devices Market valued at?

The market was valued at USD 32 billion in 2022 and is expected to reach USD 56.40 billion by 2031 with a projected CAGR of 6.5%.

2. Which region led the market in 2022?

North America held the largest share of the Diabetes Control Devices Market.

3. What drives the market growth?

The rising global prevalence of diabetes is a key factor propelling the demand for monitoring and treatment devices, thereby driving market growth.

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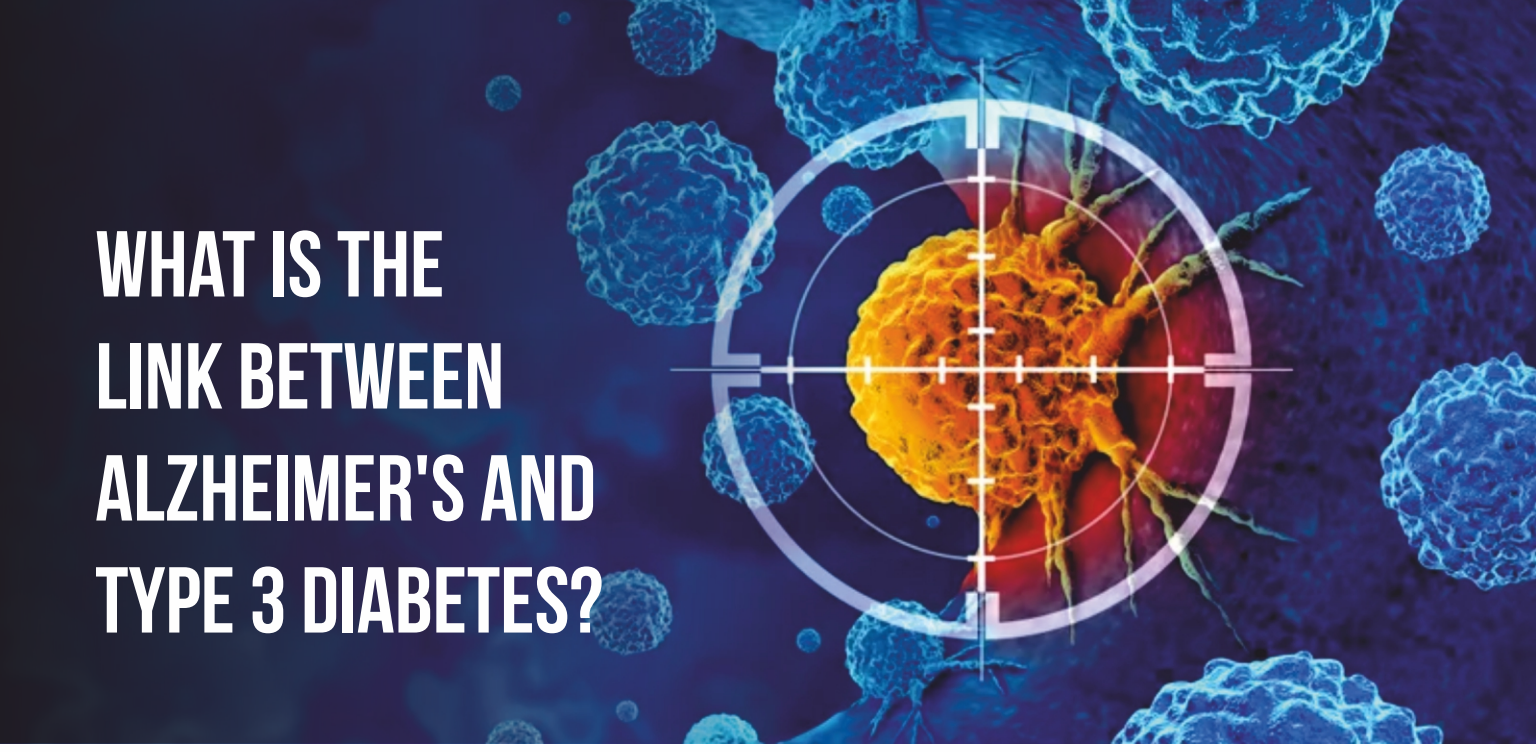

WHAT IS THE LINK BETWEEN ALZHEIMER'S AND TYPE 3 DIABETES?

Introduction:

Thank you for joining this journey as we analyze the intriguing association between two seemingly unrelated conditions: Alzheimer's disease and Type 3 diabetes. While one affects memory and thinking, the other is associated with metabolic health. However, a new study has shown a strange correlation between the two, allowing us to explore further into the secrets of the brain and body.

What is Alzheimer's disease?

Consider a world where familiar faces blend into strangers and beloved memories slip through hands like particles of sand. This is the reality for those suffering from Alzheimer's disease, an ongoing neurological condition that steals them of their memories and identity. Alzheimer's disease, the most prominent form of memory loss, has an immense impact on both patients and their loved ones, changing lives in its wake.

Understanding the Brain.

Understanding Alzheimer's disease requires a journey into the brain's deepest levels. Memories are formed here, within a huge network of brain cells and synapses that merge into consciousness' thread. However, in Alzheimer's, this outstanding weaving breaks down as toxic proteins known as amyloid-beta and tau wreak havoc on neuronal function, preventing communication and causing a chain reaction of damaging change.

The chain of symptoms

Alzheimer's disease goes on with relaxing clarity, revealing an arrangement of symptoms. Memory loss, once overlooked as simple absentmindedness, becomes a persistent companion, decreasing beloved memories with each passing day. Confusion settles like a fog, blurring the difference between past and present, while shifts in mood and behavior create shadows across once-bright views.

A challenge to deal

Carers often find the journey beside a loved one with Alzheimer's fulfilling and challenging. They must handle the ups and downs of emotions on a daily basis, providing encouragement and comfort in the face of doubt. However, among the difficulties, moments of connection and delight arise, reminding us of the eternal power of love and commitment.

The promise of hope

Researchers all across the world are exploring fresh paths ahead in the fight against Alzheimer's disease, from understanding the basic causes of neurodegeneration to developing breakthrough therapies and therapies. While a solution is still unclear each advance takes us closer to a world in which Alzheimer's disease no longer has control over our memories and thoughts.

What is type 3 Diabetes?

We go on a trip to discover the fascinating world of Type 3 diabetes, a concept that contradicts common sense and pushes us to reconsider the relationship between insulin and the mind.

The New Boundary

Diabetes, which has traditionally been considered a physical disease, takes on a new character in the brain. Enter Type 3 diabetes, a name developed to describe a strange situation in which insulin resistance spreads beyond the body's boundaries, damaging the nervous system. A tune plays out among the neurons and synapses, emphasizing the linked relationship between metabolic health and mental function.

The Brain-Blood Sugar Connection

Knowing Type 3 diabetes requires looking into the delicate interplay of insulin and the brain. Insulin, in addition to controlling blood sugar levels, acts as a master conductor, arranging an opera of connected function and neuronal life. Insulin resistance challenges this delicate balance, causing brain harmony to be broken, creating the road for brain damage and memory loss.

Uncovering the Systems

However, how can insulin resistance in the brain lead to Type 3 diabetes? The solution consists of an intricate relationship of chemical reactions in which amyloid-beta plaques and tau protein tangles play an important part. These harmful proteins, like evil attackers limit neuronal exchange, causing inflammation and oxidative stress that leads to and laying the stage for neurodegeneration.

The reversible perform

However, the connection between Type 3 diabetes and memory loss is not one-sided. Diabetes' metabolic disorders may operate as an excuse for memory loss, much as insulin resistance drives neurodegeneration in the brain. As a result, the interaction between the body and the brain develops in a continuous pattern, with each influencing the other in a delicate balance of forces.

The link between Alzheimer's and Type 3 diabetes
In the diverse view of human health, shocking connections sometimes arise, tying together apparently different illnesses. One such important link is the connection between Alzheimer's disease and Type 3 diabetes. In this search, we will look at the common mechanisms that connect the brain and metabolic health, exposing the puzzles of this hidden relation.

Insulin resistance

Insulin resistance, a condition in which cells become less responsive to the actions of insulin, is key to the relationship between Alzheimer's disease and Type 3 diabetes. Insulin resistance in Type 2 diabetes focuses on peripheral tissues including muscle and fat cells, resulting in high blood sugar levels. However, research has proven that insulin resistance can also develop in the brain, affecting how insulin signals and interfering with important neuronal activities.

With external organs, the brain uses insulin for more than simply glucose absorption. Insulin regulates synaptic development, neurotransmitter release, and neuronal survival. When insulin resistance develops in the brain, these important processes are disturbed, leading the way to memory loss and neurodegeneration. Furthermore, insulin resistance in the brain can result in the buildup of amyloid-beta plaques and tau protein tangles, which are features of Alzheimer's disease.

Common Neurological Paths

Despite insulin resistance, Alzheimer's disease and Type 3 diabetes have common pathogenic routes, which strengthens their link. One such mechanism is a breakdown of glucose metabolism and energy generation in the brain.

Imbalanced Glucose Metabolism:

In Alzheimer's disease, poor glucose metabolism in the brain causes neuronal dysfunction and synaptic loss. Similarly, insulin resistance in Type 3 diabetes affects glucose absorption and utilization in the brain, decreasing metabolic dysfunction. The resulting interruption of glucose metabolism feeds an uncontrollable cycle increasing neurodegeneration and memory loss in both disorders.

The relationship Impact.

The association between Alzheimer's disease and Type 3 diabetes is not one-way, but rather a complex relationship involving several effects. While insulin resistance in the brain contributes to Alzheimer's pathology, metabolic dysregulation caused by diabetes can also raise the chance of getting the illness.

The opposite direction Impact:

According to studies, people who have diabetes are more likely to get Alzheimer's disease, and those who have Alzheimer's disease are more likely to have insulin resistance and Type 2 diabetes. This continuous communication highlights the interplay of both disorders, as well as the need to target both metabolic and mental health in illness prevention and treatment.

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Global Events in Diabetes Care

The International Conference on Pediatric Dermatology and Diabetes Management (ICPDDM - 24)

Location: Washington DC
Date: May 20th-21st, 2024,

The International Conference on Pediatric Dermatology and Diabetes Management (ICPDDM - 24) is an event for professionals, academicians, and practitioners in the field. Attendees can expect in-depth discussions on solutions, trends, and ongoing developments, providing a platform for knowledge acquisition and improvement. Networking opportunities with experts from around the world offer collaborations, mentorship, and career growth possibilities, while also providing a chance for academicians to showcase their research and receive valuable feedback. Participation not only enhances resumes but also offers global insights into Pediatric Dermatology and Diabetes Management trends, business connections, funding opportunities, and a chance to explore the rich cultural offerings of Washington DC.

International Conference on Overweight and Diabetes (ICOD-2024)

Date: 22nd - 23rd May 2024
Location: Lagos, Nigeria,

The International Conference on Overweight and Diabetes (ICOD-2024) is a global event that brings together professionals, researchers, academics, students, and industry experts to address the important issues related to overweight and diabetes. The conference will feature high-level discussions, expert speakers, and various sessions such as keynote lectures, oral talks, poster presentations, symposia, and workshops. With an expected attendance of over 500 participants from around the world, ICOD-2024 offers great networking opportunities and a platform to share cutting-edge research, innovative solutions, and best practices in healthcare, nutrition, public health, and academia. Participants will have the chance to discuss bridging the gap between theory and practice, exploring new research avenues, and collaborating to advance strategies for managing and preventing overweight and diabetes globally.

International Conference on Neonatal Diabetes and Treatments (ICNDT)

Dates: May 24th to May 25th, 2024
Location: Manila, Philippines

The International Conference on Neonatal Diabetes and Treatments (ICNDT) is inviting researchers, healthcare professionals, industry experts, academicians, educators, students, and trainees interested in advancements in neonatal diabetes. The event aims to share recent innovations, scientific insights, and treatment modalities, providing a platform for networking, collaborations, and showcasing industry developments. Organized by Science Leagues, the conference's objective is to advance research, improve patient care, and foster educational exchanges to benefit individuals affected by neonatal diabetes. Attendees can expect engaging scientific presentations, discussions, and a vibrant environment conducive to learning and professional growth, promising a rewarding experience in both knowledge acquisition and cultural immersion in Manila.

24th International Conference on Diabetes and Diabetic Dyslipidemia

Dates: June 3rd - 4th, 2024,
Location: Denver, USA

The 24th International Conference on Diabetes and Diabetic Dyslipidemia (ICDDD-24) will be hosted by World Academics. This conference provides a platform for sharing the latest advancements and innovations in healthcare fields related to diabetes and dyslipidemia. It will bring together healthcare professionals, researchers, industry representatives, policymakers, and students. Attendees can look forward to a comprehensive program including industry-driven presentations, expert panels, and keynote speeches, facilitating knowledge exchange and professional networking. The conference's theme will focus on collaborative solutions to current and future challenges in diabetes and dyslipidemia management, with the goal of driving innovation and improving patient outcomes globally. We invite you to join us for a valuable experience of learning, networking, and contributing to the advancement of healthcare innovation.

International Conference on Pediatric Skin Infections and Diabetes Management 24 (ICPSIDM-24)

Date: June 7th-8th, 2024
Location: Durban, South Africa,

The ICPSIDM-24 conference is important for professionals in the fields of Pediatric Skin Infections and Diabetes Management. It aims to share the latest research findings and knowledge in a systematic way, fostering collaboration among policymakers, academic leaders, educators, students, and research professionals. By addressing barriers and implementing solutions, the event helps to ensure the future security and advancement of these disciplines on a global scale. Attendees can look forward to engaging lectures, discussions, panel talks, workshops, and more, all of which contribute to the overall development and progress of Pediatric Skin Infections and Diabetes Management.

Take back the control to your health: Self-Monitoring Blood Sugar for Better Health

Maintaining a balanced blood sugar level is vital for preventing long-term health issues. Having continuous high blood sugar levels can cause conditions like diabetes, which can raise the risk of serious complications such as heart disease, nerve damage, and kidney problems. But, can you avoid these health issues? Luckily, there is a solution to these problems.

You can self-measure your blood sugar levels with the help of a blood sugar monitor.

There are many blood sugar monitoring devices available in the market today. Gone are the days when you had to visit a hospital or laboratory to check your blood. Now, you can easily self-monitor your blood sugar levels at home. Many brands have developed a variety of innovative devices and monitors that you can use to self-monitor your sugar. Keep reading the article to find out more about diabetes and the devices that you can use to monitor the glucose level in your blood.

Hyperglycemia and Hypoglycemia

A high or low blood sugar level can cause various long-term or short-term health issues. Healthcare and science can help us prevent these health issues. A low sugar level is called hypoglycemia. Likewise, a high blood sugar level is called hyperglycemia.

The most common symptoms of hyperglycemia are:

- Feeling sick
- Intense thirst
- Quick unexplained weight loss
- Increased urination
- Tiredness and fatigue
- Fainting
- Blurred Vision
- Vomiting

Each of the symptoms may vary from person to person.

How does our blood sugar level affect us?

Maintaining the blood sugar level in our bodies is vital for several reasons. The sugar in our body produces energy and helps the body stay active and alert throughout the day. The sugar in our body, especially the glucose, is the root of energy for our cells. Secondly, stable blood sugar levels ensure that our body works well.

Healthy blood sugar levels

Various medical organizations and healthcare authorities establish the recommended blood sugar levels. These guidelines are derived from the history of patients and provide medical evidence after thorough research. Healthcare professionals, including endocrinologists, depend on these blood sugar levels and provide health treatment accordingly.

The American Diabetes Association (ADA) suggests the following blood sugar levels:

Levels (Fasting Plasma Glucose)	Result
126 mg/dL or higher	Diabetes
100 - 125 mg/dL	Prediabetes
Less than 100 mg/dL	Normal

A constant high blood sugar can lead a person to diabetes. Multiple reasons can cause this. Some factors like genetics, obesity, lack of physical activities, age, and unhealthy diet play important roles here.

If you have diabetes, monitoring your blood sugar levels and taking necessary precautions is essential. Diet management, medication, monitoring sugar levels, and lifestyle changes can help you keep diabetes under control and live a long and healthy life.

With the advancement of technology, you can easily self-monitor your blood sugar levels now. Depending upon the method with which you want to measure your blood sugar levels, here are a few recommendations from us:

Blood glucose meter—

A blood glucose meter is a device that uses a drop of blood to check the glucose in your blood. The sugar level is measured by placing a drop of blood on a special stick known as the test strip. You can then use the meter to check the sugar levels in your blood. Some of the popular blood glucose meters are:

1. **Accu-chek guide:** Accu-check is known for its precision testing and user simplicity. It is known for various features like its spill-resistant test strip vial and Bluetooth connectivity that make data management easy.
2. **OneTouch Verio Flex:** The OneTouch Verio Flex offers a unique color-coded result that makes interpretation easy.
3. **Contour Next One:** The Counter Next One is a reliable blood glucose meter that you can use to self-monitor your sugar levels. Its simplicity and features, like the second-chance sampling and smart-light technology, make monitoring glucose easy for users.

Noninvasive Blood sugar monitors:

Pricking a finger regularly to test your blood sugar levels can become painful with time. If you need to test your blood sugar at regular levels, you can opt for machines that do not require blood to test your sugar. A range of devices are available in the market that do not use a blood sample to check the glucose level in your blood. Some devices use infrared lights, low-level electricity, saliva, or tears to measure your blood sugar. Some of these devices are:

1. **Everense:** Eversense in a subcutaneous implant developed by Senseonics and distributed by Ascensia Diabetes Care. It is a device installed under the skin into the subcutaneous tissues. Eversense can monitor your blood glucose level continuously. It lasts up to three months under your skin. You will need to replace this device after its term is over. You can also opt for a 6-month variant of the monitor.
2. **GlucoTrack:** GlucoTrack is a device that can monitor blood sugar levels. It uses advanced technology involving a combination of ultrasonic, electromagnetic, and thermal waves. The device is the product of Integrity Applications, a U.S.-Israeli-based company. It provides readouts by clipping the monitor to the ear. The device is generally prescribed to adults suffering from type 2 diabetes.
3. **D-Base:** D-Base is a unique device that uses the heat and light mechanism to measure the blood sugar levels in your body. It is a shoe-box-sized blood sugar monitor that radiates a beaming infrared laser. The glucose in the skin converts the light of the laser to heat. The heat is further measured to monitor the blood sugar level in the body.
4. **SugarBEAT:** SugarBEAT is a replaceable skin patch that helps you monitor your blood sugar level without spilling a single drop of blood. It is the innovation of a U.K. biotech, Nemaura Medical, for pre-diabetic, type 1, and type 2 diabetes patients. The device is attached to a rechargeable transmitter that sends the data to the user's phone app after every 5 minutes.

GLUCOSE METERS

There are various glucose meters available in the market. You can choose an appropriate blood glucose after considering the following factors:

1. **Insurance Coverage:**

You can consult your insurance provider to understand the monetary coverage of the insurance before purchasing any glucose meter. Some insurers limit their coverage to specific models. They can also restrict the number of test strips covered under your insurance.

2. **Cost:**

Prices for different glucose meters vary. Consider the cost of test strips if you choose a blood glucose meter. They constitute the majority of your long-term expenses.

3. **Ease of Use:**

All meters differ in user-friendliness. It is vital to evaluate if the meter and test strips are comfortable to hold, if the screen displays the numbers clearly. Ensure that the process of obtaining the blood for testing is easy. Also, testing the precision and speed of the test is essential.

4. **Special Features:**

You can inquire about the different features that various blood glucose machines provide. These features must cater to your specific needs, such as large buttons and test strips, illuminated screens, or audio for those with impaired vision.

5. **Information Storage and Retrieval:**

It is essential to assess- how the meter stores your previous test's data. Some meters track the test's time, date, results, and trends on a mobile app. Others offer real-time data sharing with healthcare providers via smartphone apps. Some devices provide the feature to download historical data that can be shared with your doctor.

6. **Support:**

Most meter manufacturers provide a toll-free support number that you can contact in case of an emergency.

Which measuring device should you use?

Healthcare sciences and technology have made huge advancements in the past few years. There is a range of monitors available in the market now. Each of these machines has its pros and cons that might appeal to you.

You should choose a blood sugar measuring device that meets your conditions, and your unique requirements. You must ensure that this monitor is also supported by your insurance scheme. Do not rush to purchase this machine. Make sure to check out all the features first.

Lastly, choose the device that appeals to you the most.

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NEWS OF THE WEE

JUNK FOOD'S LASTING IMPACT: STUDY REVEALS LONG-TERM MEMORY DAMAGE IN ADOLESCENT RATS

Study Findings:

- USC-led study on rats reveals long-term damage caused by high-fat, sugary diet during adolescence.
- Memory impairments persisted into adulthood even after switching to a healthy diet.
- Published in the May issue of Brain, Behavior, and Immunity.

Research Focus:

- Investigating the link between poor diet and Alzheimer's disease.
- Examining impact of fatty, sugary diet on acetylcholine levels and memory.

Methodology:

- Tracked acetylcholine levels in rats on junk food diet vs. control group.
- Ran memory tests involving object recognition tasks.
- Analyzed brains post-mortem for disrupted acetylcholine levels.

Memory Test Results:

- Rats on junk food diet struggled to remember objects and their locations.
- Control group showed familiarity with objects.

Significance of Findings:

- Acetylcholine signaling essential for memory encoding and retention.
- Adolescence is a critical period for brain development, making interventions during this time crucial.

Intervention Possibilities:

- Medication inducing release of acetylcholine restored memory ability in rats.
- More research needed to understand how memory problems can be reversed without medical intervention.

Research Team:

- Led by Scott Kanoski and Anna Hayes from USC Dornsife.
- Collaborators from USC Dornsife, Keck School of Medicine of USC, and University of North Carolina-Charlotte.

Funding:

- Supported by grants from National Institute of Diabetes and Digestive and Kidney Diseases, National Institute on Aging, National Science Foundation, Quebec Research Funds, and Alzheimer's Association.

EK

THIS OUTDATED DIABETES DRUG STILL HAS SOMETHING TO OFFER

What is Thiazolidinediones? (TZDs):

- Medications for type 2 diabetes.
- Counter insulin resistance.

Historical Context:

- Height of popularity in 1990s-2000s.
- Decline due to adverse effects (weight gain, fluid retention).

UC San Diego Research:

- UC San Diego researches TZD benefits, featured in Nature Metabolism.
- UC San Diego delves into the positive aspects of TZDs, with their findings published in the prestigious journal Nature Metabolism..

Study Insights:

- TZDs effectively combat insulin resistance while also influencing the exosome system.

Obesity and Inflammation Link:

- Obesity exacerbates insulin resistance.
- Inflammation triggers exosome release.

Exosomes and Treatment Impact:

- Exosomes modulate insulin sensitivity.
- TZD treatment enhances sensitivity but induces side effects.

Targeting miR-690:

- Specific microRNA yields benefits.
- Potential avenue for type 2 diabetes therapies.

Conclusion:

In conclusion, Thiazolidinediones (TZDs) have been crucial in addressing insulin resistance in type 2 diabetes, but their popularity faded due to adverse effects. UC San Diego's research, highlighted in Nature Metabolism, sheds light on TZD benefits and their potential in targeting specific pathways like the exosome system and miR-690. This offers hope for future type 2 diabetes therapies. Understanding the link between obesity, inflammation, and TZD treatment highlights the importance of continued research in developing safer and more effective treatments for insulin resistance.

SHOE TECHNOLOGY REDUCES RISK OF DIABETIC FOOT ULCERS

The Problem:

- Diabetic foot ulcers are dangerous open sores.
- Can lead to hospitalization and amputations.

New Technology:

- Developed by researchers at The University of Texas at Arlington Research Institute (UTARI).
- Advanced shoe insole technology.
- Mitigates ulcer risk without increasing appetite.
- Promising findings for diabetes management.

Causes of Foot Ulcers:

- Diabetes damages small blood vessels.
- Poor circulation and foot sores result.

Prevalence and Impact:

- Affects about 39 million people in the U.S.
- One-third of people with diabetes develop foot ulcers.
- Over 160,000 lower extremity amputations annually in the U.S.
- Costs the American health system about $30 billion a year.

Current Solutions:

- Existing shoe insoles have marginal success in preventing foot ulcers.

Innovative Approach:

- Pressure-alternating shoe insole.
- Relieves pressure cyclically to provide rest to soft tissues and improve blood flow.

Research Findings:

- Described in the International Journal of Lower Extremity Wounds.
- Collaboration between UTARI, UT Southwestern Medical Center, and others.

Next Steps:

- Refining the technology to accommodate varying weights and shoe sizes.

Potential Impact:

- Exciting potential to make a real difference in the lives of many people at risk of foot ulcers.

Conclusion:

The pressure-alternating shoe insole technology developed by UTARI offers a promising solution for diabetic foot ulcers, reducing risk without increasing appetite. With millions affected in the U.S. and significant healthcare costs, its potential impact is significant. Collaboration and refinement efforts emphasize its importance in improving foot health and quality of life.

DO SWEETENERS INCREASE YOUR APPETITE? NEW EVIDENCE FROM RANDOMISED CONTROLLED TRIAL SAYS NO

Objective:

- The study aimed to evaluate the effects of sweeteners on appetite and blood sugar levels.

Study Design:

- Conducted as a double-blind randomized controlled trial.
- Participants consumed biscuits containing either sugar, Stevia, or Neotame.

Participants:

- Involved 53 adults with overweight or obesity, aged between 18 and 60 years.

Trial Duration:

- Carried out over the span of 2021 to 2022, consisting of three two-week consumption periods with intervals in between.

Measurements:

- Included assessments of baseline glucose, insulin, and appetite-related hormone levels, as well as appetite and food preference ratings.
- Post-consumption evaluations of fullness and measurements of blood glucose, insulin, ghrelin, glucagon-like peptide 1, and pancreatic polypeptide levels were also conducted.

Findings:

- Sweeteners exhibited no significant differences in appetite or hormone responses compared to sugar.
- They were associated with reduced insulin levels after meals and decreased blood sugar levels.

Implications:

- The study suggests that sweeteners can aid in reducing added sugar intake without elevating appetite or energy intake.
- Supports the use of sweeteners for appetite control, energy management, and weight maintenance.

Research Consortium:

- Supported by the SWEET consortium, comprised of 29 European research, consumer, and industry partners.
- Focused on investigating the long-term benefits and risks of sweeteners in various aspects of public health, safety, obesity, and sustainability.

Funding:

The study received funding from Horizon Europe.

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